

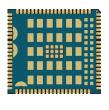
Quectel EC21 Series

IoT/M2M-optimized

LTF Cat 1 Module







Quectel EC21 is a series of LTE category 1 module optimized specially for M2M and IoT applications. It features cost-effective, low-power LTE connectivity, and delivers maximum data rates up to 10Mbps downlink and 5Mbps uplink. These make EC21 an ideal solution for numerous IoT applications that are not reliant on high speed connectivity but still require the longevity and reliability of LTE networks.

EC21 is compatible with Quectel UMTS/HSPA+ UC20/UC200T modules and multi-mode LTE Standard EC25/EC20 R2.0/EC20 R2.1/EG25-G/EG21-G modules in the compact and unified form factor. It contains 10 variants: EC21-E, EC21-EU, EC21-EUX, EC21-A, EC21-V, EC21-AUT, EC21-AU, EC21-AUX, EC21-KL and EC21-J. This makes it backward-compatible with existing EDGE and GSM/GPRS networks, ensuring that it can easily migrate from LTE to 2G or 3G network.

EC21 supports Qualcomm® IZat™ location technology Gen8C Lite (GPS, GLONASS, BeiDou/Compass, Galileo and QZSS). The integrated GNSS greatly simplifies product design, and provides quicker, more accurate and more dependable positioning.

A rich set of Internet protocols, industry-standard interfaces and abundant functionalities (USB serial drivers for Windows 7/8/8.1/10, Linux, Android/eCall*) extend the applicability of the module to a wide range of M2M and IoT applications such as smart metering, wearable devices, environmental monitoring, asset tracking, fleet management, security and alarm systems, and so on.



Key **Benefits**

- Cost-effective, lower-power LTE connectivity optimized for broad-band IoT applications
- Worldwide LTE, UMTS/HSPA(+) and GSM/GPRS/EDGE coverage
- Multi-constellation GNSS receiver available for applications requiring fast and accurate fixes in any environment
- Feature refinements: supports DFOTA, eCall* and DTMF
- MIMO technology meets demands for data rate and link reliability in modem wireless communication systems



LTE Cat 1 Max 10Mbps (DL) Max 5Mbps (UL)



Max 5.76Mbps (UL)



LCC Package





eCall*



Embedded Abundant Protocols



Multi-constellation **GNSS**



USB 2.0 High Speed Interface



Quectel Enhanced AT Commands

Rev.: V1.9 | Status: Released

Quectel EC21 Series

LTE Cat 1	EC21-E	EC21-EU	EC21-EUX	EC21-A	EC21-V
egion/Operator	EMEA/Thailand/India	EMEA/Thailand	EMEA/Thailand	North America	Verizon
imensions (mm)	32.0 × 29.0 × 2.4	32.0 × 29.0 × 2.4	32.0 × 29.0 × 2.4	32.0 × 29.0 × 2.4	32.0 × 29.0 × 2.4
emperature Range					
peration Temperature	-35°C ~ +75°C	-35°C ~ +75°C	-35°C ~ +75°C	-35°C ~ +75°C	-35°C ~ +75°C
xtended Temperature	-40°C ~ +85°C	-40°C ~ +85°C	-40°C ~ +85°C	-40°C ~ +85°C	-40°C ~ +85°C
requency Bands					
TE-FDD	B1/B3/B5/B7/B8/B20	B1/B3/B7/B8/B20/B28A	B1/B3/B7/B8/B20/B28A	B2/B4/B12	B4/B13
/CDMA	B1/B5/B8	B1/B8	B1/B8	B2/B4/B5	\
SM/EDGE	B3/B8	B3/B8	B3/B8	\	\
NSS	GPS/GLONASS/BeiDou (Compass)/Galileo/QZSS (Optional)	GPS/GLONASS/BeiDou (Compass)/Galileo/QZSS (Optional)	GPS/GLONASS/BeiDou (Compass)/ Galileo/QZSS (Optional)	GPS/GLONASS/BeiDou (Compass)/Galileo/QZSS (Optional)	GPS/GLONASS/BeiDou (Compass)/Galileo/QZSS (Optional)
ertifications					
arrier	Global: Vodafone Europe: Deutsche Telekom/ Telefónica*	Europe: Deutsche Telekom	\	North America: AT&T/T-Mobile/ U.S. Cellular Canada: Rogers/Telus	North America: Verizon
egulatory	Global: GCF Europe: CE Russia: FAC	Global: GCF Europe: CE Taiwan (China): NCC Australia/New Zealand: RCM	Global: GCF* Europe: CE* Australia/New Zealand: RCM*	North America: FCC/PTCRB Canada: IC	Global: GCF North America: FCC
thers	RoHS/WHQL	RoHS/WHQL	RoHS/WHQL	RoHS/WHQL	RoHS/WHQL
ata Transmission					
E-FDD Data Rate (Mbps)	Max 10 (DL)/ 5 (UL)	Max 10 (DL)/ 5 (UL)	Max 10 (DL)/ 5 (UL)	Max 10 (DL)/ 5 (UL)	Max 10 (DL)/ 5 (UL)
C-HSPA+ Data Rate (Mbps)	Max 42 (DL)/ 5.76 (UL)	Max 42 (DL)/ 5.76 (UL)	Max 42 (DL)/ 5.76 (UL)	Max 42 (DL)/ 5.76 (UL)	\
CDMA Data Rate (Kbps)	Max 384 (DL)/ 384 (UL)	Max 384 (DL)/ 384 (UL)	Max 384 (DL)/ 384 (UL)	Max 384 (DL)/ 384 (UL)	
OGE Data Rate (Kbps)	Max 296 (DL)/ 236.8 (UL)	Max 296 (DL)/ 236.8 (UL)	Max 296 (DL)/ 236.8 (UL)	\	\
PRS Data Rate (Kbps)	Max 107 (DL)/ 85.6 (UL)	Max 107 (DL)/ 85.6 (UL)	Max 107 (DL)/ 85.6 (UL)	\	\
terfaces	. ,, \ /	(,, ()	, ,, , ,,	<u> </u>	·
)SIM	x 1	x 1	x 1	x 1	x 1
ART	x 2	x 2	x 2	x 2	x 2
SB 2.0	x 1	x 1	x 1	x 1	x 1
ıdio Digital (PCM)	x 1	x 1	x 1	x 1	x 1
C DIO	x 1 x 2	x 1 x 2	x 1 x 1	x 1 x 2	x 1 x 2
SMII	x 1	x 1	x 1	x 2 x 1	x 2 x 1
uetooth*	x 1	x1	\	x 1	x 1
DC Dice	x 2	x 2	x 2	x 2	x 2
eech Codec Modes	HR/FR/EFR/AMR/AMR-WB	HR/FR/EFR/AMR/AMR-WB	HR/FR/EFR/AMR/AMR-WB	HR/FR/EFR/AMR/AMR-WB	HR/FR/EFR/AMR/AMR-WB
ho Arithmetic	Echo Cancellation/	Echo Cancellation/	Echo Cancellation/	Echo Cancellation/	Echo Cancellation/
	Noise Suppression Digital Audio and VoLTE	Noise Suppression Digital Audio and VoLTE	Noise Suppression Digital Audio and VoLTE	Noise Suppression Digital Audio and VoLTE	Noise Suppression Digital Audio and VoLTE
OLTE	(Voice over LTE) (Optional)	(Voice over LTE) (Optional)	(Voice over LTE) (Optional)	(Voice over LTE) (Optional)	(Voice over LTE) (Optional)
Call*	•	•	•	•	•
ГМЕ	•	•	•	•	•
ОТА	•	•	•	•	•
MI/ RmNet	•	•	•	•	•
udio Playback*/ udio Recording*	Optional	Optional	Optional	Optional	Optional
uecLocator®	•	•	•	*	*
uecFile	•	•	•	•	•
)SIM Card Detection	•	•	•	•	•
rivers					
SB Serial Driver	Windows 7/8/8.1/10, Linux 2.6~5.4, Android 4.x/5.x/6.x/7.x/9.x	Windows 7/8/8.1/10, Linux 2.6~5.4, Android 4.x/5.x/6.x/7.x/9.x	Windows 7/8/8.1/10, Linux 2.6~5.4, Android 4.x/5.x/6.x/7.x/9.x	Windows 7/8/8.1/10, Linux 2.6~5.4, Android 4.x/5.x/6.x/7.x/9.x	Windows 7/8/8.1/10, Linux 2.6~5.4, Android 4.x/5.x/6.x/7.x/9.x
NSS Driver	Android 4.x/5.x/6.x/7.x/8.x/9.x	Android 4.x/5.x/6.x/7.x/8.x/9.x	Android 4.x/5.x/6.x/7.x/8.x/9.x	Android 4.x/5.x/6.x/7.x/8.x/9.x	Android 4.x/5.x/6.x/7.x/8.x/9.x
L Driver	Android 4.x/5.x/6.x/7.x/8.x/9.x	Android 4.x/5.x/6.x/7.x/8.x/9.x	Android 4.x/5.x/6.x/7.x/8.x/9.x	Android 4.x/5.x/6.x/7.x/8.x/9.x	Android 4.x/5.x/6.x/7.x/8.x/9.x
DIS Driver	Windows 7/8/8.1/10	Windows 7/8/8.1/10	Windows 7/8/8.1/10	Windows 7/8/8.1/10	Windows 7/8/8.1/10
BIM Driver	Windows 8/8.1/10,	Windows 8/8.1/10,	\	Windows 8/8.1/10,	Windows 8/8.1/10,
	Linux 3.18~5.4	Linux 3.18~5.4	\ Linux 2 6~5 4	Linux 3.18~5.4	Linux 3.18~5.4
obiNet Driver	Linux 2.6~5.4 Linux 3.4~5.4	Linux 2.6~5.4 Linux 3.4~5.4	Linux 2.6~5.4 Linux 3.4~5.4	Linux 2.6~5.4 Linux 3.4~5.4	Linux 2.6~5.4 Linux 3.4~5.4
MI_WWAN Driver	LIIIUX 3.4 3.4	LIIIUX 3.4 3.4	ыних э.4 э.4	LINUX 3.4 3.4	LIIIUX 3.4 3.4
ectrical Features upply Voltage Range	3.3V~4.3V, 3.8V Typ.	3.3V~4.3V, 3.8V Typ.	3.3V~4.3V, 3.8V Typ.	3.3V~4.3V, 3.8V Typ.	3.3V~4.3V, 3.8V Typ.
ower Consumption	13μA @Power off 1.4mA @Sleep, Typ. 22mA @Idle	13µA @Power off 1.8mA @Sleep, Typ. 18mA @Idle	7.0μA @Power off 0.9mA @Sleep, Typ. 17mA @Idle	10μA @Power off 1.3mA @Sleep, Typ. 23mA @Idle	10μA @Power off 1.1mA @Sleep, Typ. 22mA @Idle
					Notoc

Notes:
1. * means under development.
2. ● means supported.



Quectel EC21 Series

LTE Cat 1	EC21-AUT	EC21-AU	EC21-AUX	EC21-KL	EC21-J
tegion/Operator	Australia	Latin America/Australia/	Latin America/Australia/	South Korea	Japan
Dimensions (mm)	32.0 × 29.0 × 2.4	New Zealand 32.0 × 29.0 × 2.4	New Zealand 32.0 × 29.0 × 2.4	32.0 × 29.0 × 2.4	32.0 × 29.0 × 2.4
emperature Range	32.0 ^ 23.0 ^ 2.4	32.0 ^ 23.0 ^ 2.4	32.0 ^ 23.0 ^ 2.4	32.0 ^ 23.0 ^ 2.4	32.0 ^ 23.0 ^ 2.4
Deration Temperature	-35°C ~ +75°C	-35°C ~ +75°C	-35°C ~ +75°C	-35°C ~ +75°C	-35°C ~ +75°C
xtended Temperature	-40°C ~ +85°C	-40°C ~ +85°C	-40°C ~ +85°C	-40°C ~ +85°C	-40°C ~ +85°C
	-40 C 183 C	-40 C 183 C	-40 C 183 C	-40 C 185 C	-40 C 183 C
requency Bands	D4 /D2 /DE /D7 /D20	B1/B2 ^① /B3/B4/B5/B7/B8/B28	B1/B2 ^① /B3/B4/B5/B7/B8/B28	D4 /D2 /DE /D7 /D0	D4 /D2 /D0 /D40 /D40 /D2C
TE-FDD TE-TDD	B1/B3/B5/B7/B28	B1/B2©/B3/B4/B5/B//B8/B28	B1/B2 © /B3/B4/B5/B7/B8/B28 B40	B1/B3/B5/B7/B8	B1/B3/B8/B18/B19/B26
VCDMA	N B1/B5	B1/B2/B5/B8	B1/B2/B4/B5/B8	\	\
SSM/EDGE	\	B2/B3/B5/B8	B2/B3/B5/B8	\	\
GNSS	GPS/GLONASS/BeiDou (Compass)/Galileo/QZSS (Optional)	GPS/GLONASS/BeiDou (Compass)/Galileo/QZSS (Optional)	GPS/GLONASS/BeiDou (Compass)/Galileo/QZSS (Optional)	\	GPS/GLONASS/BeiDou (Compass) Galileo/QZSS (Optional)
Certifications		, , ,	,		
Carrier	Australia: Telstra	Australia: Telstra	\	South Korea: KT/SKT	Japan: NTT DOCOMO/KDDI
Regulatory	Global: GCF Australia/New Zealand: RCM	North America: FCC Canada: IC Brazil: Anatel Taiwan (China): NCC Japan: JATE/TELEC Australia/New Zealand: RCM	Europe: CE North America: FCC Brazil: Anatel Taiwan (China): NCC Australia/New Zealand: RCM	South Korea: KC	Japan: JATE/TELEC
Others	RoHS/WHQL	RoHS/WHQL	RoHS/WHQL	RoHS/WHQL	RoHS/WHQL
Pata Transmission					
TE-FDD Data Rate (Mbps)	Max 10 (DL)/ 5 (UL)	Max 10 (DL)/ 5 (UL)	Max 10 (DL)/ 5 (UL)	Max 10 (DL)/ 5 (UL)	Max 10 (DL)/ 5 (UL)
TE-TDD Data Rate (Mbps)	\	Max 8.96 (DL)/ 3.1 (UL)	Max 8.96 (DL)/ 3.1 (UL)	\ " " \ "	\
DC-HSPA+ Data Rate (Mbps)	Max 42 (DL)/ 5.76 (UL)	Max 42 (DL)/ 5.76 (UL)	Max 42 (DL)/ 5.76 (UL)	\	\
VCDMA Data Rate (Kbps)	Max 384 (DL)/ 384 (UL)	Max 384 (DL)/ 384 (UL)	Max 384 (DL)/ 384 (UL)	\	\
DGE Data Rate (Kbps)	\\	Max 296 (DL)/ 236.8 (UL)	Max 296 (DL)/ 236.8 (UL)	\	\
SPRS Data Rate (Kbps)	\	Max 107 (DL)/ 85.6 (UL)	Max 107 (DL)/ 85.6 (UL)	\	\
	\	1410V TO\ (DE)\ 03.0 (OE)	1410V TO1 (DE)/ 03.0 (OE)	1	1
nterfaces	w.1	n 1	v 1	v 1	w.1
U)SIM JART	x 1 x 2	x 1 x 2	x 1 x 2	x 1 x 2	x 1 x 2
JSB 2.0	x1	x 1	x 1	x 1	x 1
Audio Digital (PCM)	x 1	x 1	x 1	x 1	x 1
2C	x 1	x 1	x 1	x 1	x 1
DIO GMII	x 2 x 1	x 2 x 1	x 1 x 1	x 2 x 1	x 2 x 1
Bluetooth*	x1	x1	/ X I	x1	x 1
ADC	x 2	x 2	x 2	x 2	x 2
Speech Codec Modes	HR/FR/EFR/AMR/AMR-WB	HR/FR/EFR/AMR/AMR-WB	HR/FR/EFR/AMR/AMR-WB	HR/FR/EFR/AMR/AMR-WB	HR/FR/EFR/AMR/AMR-WB
Cho Arithmetic	Echo Cancellation/	Echo Cancellation/	Echo Cancellation/	Echo Cancellation/ Noise Suppression	Echo Cancellation/
	Noise Suppression Digital Audio and VoLTE	Noise Suppression Digital Audio and VoLTE	Noise Suppression Digital Audio and VoLTE	Digital Audio and VoLTE	Noise Suppression Digital Audio and VoLTE
/oLTE	(Voice over LTE) (Optional)	(Voice over LTE) (Optional)	(Voice over LTE) (Optional)	(Voice over LTE) (Optional)	(Voice over LTE) (Optional)
eCall*	•	•	•	•	•
DTMF	•	•	•	•	•
DFOTA	•	•	•	•	•
QMI/ RmNet	•	•	•	•	•
Audio Playback*/ Audio Recording*	Optional	Optional	Optional	Optional	Optional
QuecLocator®	*	•	•	•	•
QuecFile	•	•	•	•	•
U)SIM Card Detection	•	•	•	•	•
Drivers					
JSB Serial Driver	Windows 7/8/8.1/10, Linux 2.6~5.4, Android 4.x/5.x/6.x/7.x/9.x	Windows 7/8/8.1/10, Linux 2.6~5.4, Android 4.x/5.x/6.x/7.x/9.x	Windows 7/8/8.1/10, Linux 2.6~5.4, Android 4.x/5.x/6.x/7.x/9.x	Windows 7/8/8.1/10, Linux 2.6~5.4, Android 4.x/5.x/6.x/7.x/9.x	Windows 7/8/8.1/10, Linux 2.6~5.4, Android 4.x/5.x/6.x/7.x/9.x
	Android	Android 4.x/5.x/6.x/7.x/8.x/9.x	Android 4.x/5.x/6.x/7.x/8.x/9.x	\	Android 4.x/5.x/6.x/7.x/8.x/9.x
GNSS Driver	4.x/5.x/6.x/7.x/8.x/9.x	ing sing only ring only sin		Android	Android
RIL Driver	4.x/5.x/6.x/7.x/8.x/9.x Android 4.x/5.x/6.x/7.x/8.x/9.x	Android 4.x/5.x/6.x/7.x/8.x/9.x	Android 4.x/5.x/6.x/7.x/8.x/9.x	4.x/5.x/6.x/7.x/8.x/9.x	4.x/5.x/6.x/7.x/8.x/9.x
RIL Driver	4.x/5.x/6.x/7.x/8.x/9.x Android 4.x/5.x/6.x/7.x/8.x/9.x Windows 7/8/8.1/10	Android 4.x/5.x/6.x/7.x/8.x/9.x Windows 7/8/8.1/10	Android 4.x/5.x/6.x/7.x/8.x/9.x Windows 7/8/8.1/10	Windows 7/8/8.1/10	Windows 7/8/8.1/10
SNSS Driver KIL Driver NDIS Driver VBIM Driver	4.x/5.x/6.x/7.x/8.x/9.x Android 4.x/5.x/6.x/7.x/8.x/9.x	Android 4.x/5.x/6.x/7.x/8.x/9.x	4.x/5.x/6.x/7.x/8.x/9.x		
IIL Driver IDIS Driver ABIM Driver	4.x/5.x/6.x/7.x/8.x/9.x Android 4.x/5.x/6.x/7.x/8.x/9.x Windows 7/8/8.1/10 Windows 8/8.1/10,	Android 4.x/5.x/6.x/7.x/8.x/9.x Windows 7/8/8.1/10 Windows 8/8.1/10,	4.x/5.x/6.x/7.x/8.x/9.x	Windows 7/8/8.1/10 Windows 8/8.1/10,	Windows 7/8/8.1/10 Windows 8/8.1/10,
RIL Driver NDIS Driver MBIM Driver GobiNet Driver	4.x/5.x/6.x/7.x/8.x/9.x Android 4.x/5.x/6.x/7.x/8.x/9.x Windows 7/8/8.1/10 Windows 8/8.1/10, Linux 3.18~5.4	Android 4.x/5.x/6.x/7.x/8.x/9.x Windows 7/8/8.1/10 Windows 8/8.1/10, Linux 3.18~5.4	4.x/5.x/6.x/7.x/8.x/9.x Windows 7/8/8.1/10	Windows 7/8/8.1/10 Windows 8/8.1/10, Linux 3.18~5.4	Windows 7/8/8.1/10 Windows 8/8.1/10, Linux 3.18~5.4
IIL Driver IDIS Driver ABIM Driver GobiNet Driver QMI_WWAN Driver	4.x/5.x/6.x/7.x/8.x/9.x Android 4.x/5.x/6.x/7.x/8.x/9.x Windows 7/8/8.1/10 Windows 8/8.1/10, Linux 3.18~5.4 Linux 2.6~5.4	Android 4.x/5.x/6.x/7.x/8.x/9.x Windows 7/8/8.1/10 Windows 8/8.1/10, Linux 3.18~5.4 Linux 2.6~5.4	4.x/5.x/6.x/7.x/8.x/9.x Windows 7/8/8.1/10 \ Linux 2.6~5.4	Windows 7/8/8.1/10 Windows 8/8.1/10, Linux 3.18~5.4 Linux 2.6~5.4	Windows 7/8/8.1/10 Windows 8/8.1/10, Linux 3.18~5.4 Linux 2.6~5.4
RIL Driver NDIS Driver	4.x/5.x/6.x/7.x/8.x/9.x Android 4.x/5.x/6.x/7.x/8.x/9.x Windows 7/8/8.1/10 Windows 8/8.1/10, Linux 3.18~5.4 Linux 2.6~5.4	Android 4.x/5.x/6.x/7.x/8.x/9.x Windows 7/8/8.1/10 Windows 8/8.1/10, Linux 3.18~5.4 Linux 2.6~5.4	4.x/5.x/6.x/7.x/8.x/9.x Windows 7/8/8.1/10 \ Linux 2.6~5.4	Windows 7/8/8.1/10 Windows 8/8.1/10, Linux 3.18~5.4 Linux 2.6~5.4	Windows 7/8/8.1/10 Windows 8/8.1/10, Linux 3.18~5.4 Linux 2.6~5.4
IIL Driver IDIS Driver ABIM Driver BOBINET Driver RMI_WWAN Driver Lectrical Features	4.x/5.x/6.x/7.x/8.x/9.x Android 4.x/5.x/6.x/7.x/8.x/9.x Windows 7/8/8.1/10 Windows 8/8.1/10, Linux 3.18~5.4 Linux 2.6~5.4 Linux 3.4~5.4	Android 4.x/5.x/6.x/7.x/8.x/9.x Windows 7/8/8.1/10 Windows 8/8.1/10, Linux 3.18*5.4 Linux 2.6*5.4 Linux 3.4*5.4	4.x/5.x/6.x/7.x/8.x/9.x Windows 7/8/8.1/10 \ Linux 2.6~5.4 Linux 3.4~5.4	Windows 7/8/8.1/10 Windows 8/8.1/10, Linux 3.18°5.4 Linux 2.6°5.4 Linux 3.4°5.4	Windows 7/8/8.1/10 Windows 8/8.1/10, Linux 3.18~5.4 Linux 2.6~5.4 Linux 3.4~5.4

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Notes:
1. ① LTE-FDD B2 of EC21-AU and EC21-AUX does not support Rx-diversity.
2. * means under development.
3. ● means supported.



Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

Quectel:

<u>EC21EFATEA-512-STD</u> <u>EC21EUGATEA-512-SGNS</u> <u>EC21EUXGA-128-SGNS</u> <u>EC21EUXGATEA-128-SGNS</u> EC21VFATEA-512-STD